

REMARKS

Claims 6, 11, 14 and 16 have been amended, without prejudice or disclaimer, to correct minor typographical errors. Claim 38 has been added. No new matter has been introduced. Support for the amended claims and the new claim is found throughout the specification, claims, and drawings as originally filed. Thirty-eight (38) claim(s) are pending and remain for consideration. Favorable reconsideration of the pending claims and further examination of the application is respectfully requested.

IN THE CLAIMS

35 U.S.C. § 102

Claims 1-2, 6, 11-12, 14-17, 21-25, 27, 29 and 31, are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,555,949, to Stallard et al. This rejection is respectfully traversed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the applicant's claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

Claim 1 recites an electronic control system for a personal mobility vehicle. The system comprises at least one input and at least one output. The input is adapted to be *programmably mapped to the output according to a user's preferences*.

In paragraph 4, of the Official Letter, the Examiner states that Stallard et al. disclose an electronic control system for a personal mobility vehicle, comprising at least one input, referring Applicants to the abstract, and at least one output, the input being adapted to be programmably mapped to the output according to a user's preference, referring Applicants to cols. 2-3, lines 65-26.

Stallard et al. show and describe an electronic control system for a personal mobility vehicle, comprising an input device 20 and an output device (i.e., motor 34) for effecting a desired wheelchair movement. However, Stallard et al. fail to show or describe an input that is adapted to be *programmably* mapped to an output *according to a user's preference*, as set forth in claim 1. Instead, the control system described by Stallard et al. is adapted to be physically configured by the unique positioning of set of DIP switches, which indicates to a microcontroller 26 the type of input device to which a controller 22 should respond. The ability of the control system of Stallard et al. to be physically configured is not a *programmable* function. Moreover, changing the input device to which the controller responds does not *map the input device to the output device*. Lastly, the input device described by Stallard et al. is not programmably mapped to the output device *according to a user's preference*. Instead, the controller made responsive to different input devices, either a joystick or a set of switches. Since Stallard et al. fail to show or describe an input that is adapted to be *programmably* mapped to an output *according to a user's preference*, claim 1 should be allowable as written.

Claims 2-13 depend from claim 1 and should be allowable for at least the same reason(s) as claim 1, as set forth above. In addition, claim 6 recites a plurality of switched inputs and a plurality of outputs, wherein different switched inputs are adapted to be programmably assigned *to control different outputs*. Stallard et al. fail to disclose inputs that are adapted to be programmably assigned *to control different outputs*. Instead, Stallard et al. describe a controller 22 responsive to an input device 20 to control the same output device (i.e., a motor 34). The input device described by Stallard et al. does not *control different output devices*. Since Stallard et al. fail to disclose inputs that are adapted to be programmably assigned *to control different outputs*, claim 6 should be allowable in its own right.

Claim 11 recites *an output that is infrequently used*, a processor for controlling the infrequently used output in response to a signal from a switched input, and a hand

control module comprising a visual graphic and an analog input for navigating through the visual graphic to control the at least one output, the processor being programmable to map the switched input to control the at least one output instead of the infrequently used output. Stallard et al. fail to disclose *an infrequently used output*. Instead, Stallard et al. describe one output device (i.e., a motor 34) which is frequently used to control the movement of a wheelchair. In addition, Stallard et al. fail to disclose a processor that is programmable to map a switched input to control *an output other than the infrequently used output*. Since Stallard et al. fail to disclose all the elements of claim 11, claim 11 should be allowable in its own right.

Claim 12 recites a processor and software that is *adapted to be configured so that the processor can map the input to control the output*. Stallard et al. fail to disclose software that is *adapted to be configured so that the processor can map the input to control the output*, as set forth in claim 12. Since Stallard et al. fail to disclose all the elements of claim 12, claim 12 should be allowable in its own right.

Claim 14 recites an electronic control system for a personal mobility vehicle, comprising a user interface object, a plurality of targets, and a processor that is *programmable to send an action message from the user interface object to a desired one of the targets*. Stallard et al. show and describe an electronic control system for a personal mobility vehicle, comprising a user interface object 20, a plurality of targets (i.e., motors 34), and a processor 26. However, the processor described by Stallard et al. is not *programmable to send an action message from the user interface object to a desired one of the targets*, as set forth in claim 14. Instead, the control system described by Stallard et al. is adapted to be physically configured by the unique positioning of set of DIP switches, which indicates to a microcontroller 26 the type of user interface object to which a controller 22 should respond. The ability of the control system of Stallard et al. to be physically configured is not a *programmable* function. Moreover, the control system described by Stallard et al. does not send an action message from the user interface object *to a desired one of the targets*. Instead,

the controller made responsive to different user interface objects, either a joystick or a set of switches. Since Stallard et al. fail to show or describe a user interface object that is adapted to be *programmably* mapped to a target output *according to a user's preference*, claim 1 should be allowable as written.

Claim 15 depends from claim 14 and should be allowable for at least the same reason(s) as claim 14, as set forth above. In addition, claim 15 requires the user interface object to be a switched input and *a processor that is programmable to cause the switched input to act as either a latched input or an unlatched input*. The Examiner asserts that the Stallard et al. disclose a processor that is *programmable to cause the switched input to act as either a latched input or an unlatched input*, referring to cols. 4-5, lines 57-13. However, Stallard et al. do not disclose a processor that is *programmable to cause the switched input to act as either a latched input or an unlatched input*. Applicants have thoroughly reviewed the Stallard et al. patent, particularly cols. 4-5, lines 57-13, and there is no description of *latched or unlatched inputs*, or *the ability to cause a switch to function as either a latched input or an unlatched input*, as set forth in claim 15. In the absence of such disclosure, claim 15 should be allowable over Stallard et al. in its own right.

Claim 16 recites *an input that is programmably mapped to the output so that the commonly used output can be performed while minimizing the number of sequences of input commands required to perform the output*. The Examiner asserts that Stallard et al. disclose the claimed invention, referring Applicants to cols. 4-5, lines 35-13. However, Applicants have thoroughly reviewed the Stallard et al. patent, particularly 4-5, lines 35-13, and there is no description of *a commonly used output*, *a sequence of input commands required to perform the output*, or much more *an input that is programmably mapped to the output so that the commonly used output can be performed while minimizing the number of sequences of input commands required to perform the output*, as set forth in claim 16. In the absence of such disclosure, claim 16 should be allowable over Stallard et al. as written.

Claim 17 depends from claim 16 and should be allowable for at least the same reason(s) as claim 16, as set forth above.

Claim 21 recites a method comprising the steps of *selecting a desired input, assigning an operation or control function to the desired input, and associating an output with the assigned operation or control function*. The Examiner asserts that Stallard et al. disclose the claimed invention, referring Applicants to the abstract and cols. 4-5, lines 34-13 and cols. 5-6, lines 33-6. Stallard et al. disclose an input 20, an output (i.e., motor 34), and operation or control function (i.e., turning, forward and reverse motion, acceleration, and braking). However, Stallard et al. fail to disclose the steps of *selecting a desired input, assigning an operation or control function to the desired input, and associating an output with the assigned operation or control function*, as set forth in claim 21. Instead, Stallard et al. disclose a control system that can be physically configured so that a controller can be made responsive to a particular input, either a joystick or a set of switches. The control system does not *assign an operation or control function to the input and then associate an output with that assigned operation or control function*. In the absence of such disclosure, claim 21 should be allowable as written.

Claims 22-25, 27, 29 and 31 depend from claim 21 and should be allowable for at least the same reasons as claim 21. In addition, claim 23 recites the steps of *entering a programming mode and depressing the desired input to assign an operation or control function to the desired input*. The Examiner asserts that Stallard et al. disclose the claimed invention, referring Applicants to col. 6, lines 7-54 and cols. 5-6, lines 33-6. However, Stallard et al., in col. 6, lines 7-54, disclose steps for converting analog joystick signals to digital signals that can be read by the control system and calibrating the joystick. In cols. 5-6, lines 33-6, Stallard et al. disclose steps indicating to which switched input 20 (i.e., either a set of one, two, three or four switches) a controller 22 is responsive. Stallard et al. do not disclose the steps of *entering a programming mode and depressing the desired input to assign an operation or control*

function to the desired input, as recited in claim 23. In the absence of such disclosure, claim 23 should be allowable over Stallard et al. in its own right.

Claim 24 recites the step of providing *a program editor*. The Examiner asserts that Stallard et al. disclose *a program editor*, as set forth in claim 24, referring Applicants to cols. 4-5, lines 34-13. However, Stallard et al., in cols. 4-5, lines 34-13, discloses an algorithm for operating a microcontroller 26 in response to the type of input device connected to the controller. Stallard et al. do not disclose *a program editor*, as set forth in claim 24. In the absence of such disclosure, claim 24 should be allowable in its own right.

Claim 25 recites the steps of providing *a list of inputs and selecting an input from the list*. The Examiner asserts that Stallard et al. disclose the claimed invention, referring Applicants to cols. 4-5, lines 57-13. However, Stallard et al. disclose a physical configuration that it is adapted to be changed by the selection of DIP switches to indicate to a microcontroller 26 to which input device 20 (i.e., either a joystick or a set of switches) a controller 22 should respond. Stallard et al. do not disclose the steps of providing *a list of inputs and selecting an input from the list*, as set forth in claim 25. In the absence of such disclosure, claim 25 should be allowable in its own right.

Claim 27 recites the steps of *providing a list of operations or control functions and selecting an operation or control function from the list*. Claim 29 recites the steps of *providing a list of outputs and selecting an outputs from the list*. The Examiner asserts that Stallard et al. disclose the claimed invention, referring Applicants to cols. 3-4, lines 27-17. However, Stallard et al., in cols. 3-4, lines 27-17, disclose potentiometers 36-48 that are adjustable for defining operating parameters of motors 34 and DIP switches, which connect an input device 20 to a microcontroller 26 for indicating the type of input device to which a controller 22 should respond. Stallard et al. do not disclose steps of *providing a list of operations or outputs and selecting an operation or output from the list*, as set forth in claims 27 and 29. In the absence of such disclosure, claims 27 and 29 should be allowable in their own right.

35 U.S.C. § 103

Claims 3-5, 7-10, 13, 18-20, 26, 28, 30 and 32-37, are rejected under 35 U.S.C. §103(a) as being unpatentable over Stallard et al. in view of U.S. Patent No. 6,154,690, to Coleman. This rejection is respectfully traversed.

To establish a prima facie case of obviousness, the claimed invention must be considered as a whole and the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182 187 n.5 (Fed. Cir. 1986). Moreover, the references, when combined, must teach or suggest all the claim limitations and the teaching or suggestion to make the claimed combination must be found in the references, and not in Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). A statement that modifications of the references to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Claims 3-5, 7-10, 13, 18-20, 26, 28, 30 and 32-37 depend from claims 1, 14, 16 and 21, and should be allowable over Stallard et al. for the reason(s) set forth above. Coleman fails to cure the deficiencies in Stallard et al. Hence, claims 3-5, 7-10, 13, 18-20, 26, 28, 30 and 32-37 should be allowable over Stallard et al. in view of Coleman for that same reason(s) that claims 1, 14, 16 and 21, as set forth above.

In addition, claims 3, 4 and 7-9 recite outputs in the form of *a power seat, an environmental control, an accessory, and a light*. The Examiner admits Stallard et al. do not disclose the claimed outputs. For these limitations, the Examiner relies on Coleman, asserting that Coleman discloses the outputs recited in the claims, and stating that it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Stallard et al. by combining the outputs taught Coleman. However, Stallard et al. disclose only motors 34 for effecting forward and rearward movement of a wheelchair. There is no teaching in Stallard et al. that the motors are exemplary outputs or that the invention disclosed by Stallard et al. could be practiced with other outputs (i.e., *a power seat, environmental control, an accessory control, or a light*). Coleman discloses a seat 7 but Coleman fails to disclose an input that is adapted to be *programmably mapped to the seat according to a user's preferences*. Hence, there is no motivation to combine the teachings of Stallard et al. and Coleman, other than the benefit of gleaned from hindsight of Applicants' disclosure. The statement that stating that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stallard et al. by combining the power seat module taught Coleman because the references relied upon may teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Without some objective reason to combine the teachings of the references, the rejection of claims 3, 4 and 7-9 is improper and the claims should be allowable in their own right.

Claim 10 recites a switched input for controlling *an infrequently used output*, wherein the switched input is adapted to be programmably mapped *to control the an output other than the infrequently used output*. The Examiner asserts that Coleman teaches the invention, as set forth in claim 10, referring Applicants to cols, 5-6, lines 55-3, and col. 7, lines 11-26. However, Coleman, particularly in cols, 5-6, lines 55-3, and col. 7, lines 11-26, teaches an alarm system that is adapted to be connected a computer, a light source on a headrest, and a battery monitor. Coleman does not describe these features as being *infrequently used or means by which other features may be controlled instead of controlling these features*, as set forth in claim 10. In the absence of such teaching, claim 10 should be allowable in its own right.

Claim 13 recites a software profile that is *created for a particular user*. The Examiner asserts that Coleman discloses such a profile, referring Applicants to col. 4, lines 5-17, and col. 6, lines 4-27. Contrary to the Examiner's assertion, Coleman, particular in col. 4, lines 5-17, and col. 6, lines 4-27, and elsewhere, fails to teach a software profile that is *created for a particular user*, as set forth in claim 13. In the absence of such teaching, claim 13 should be allowable in its own right.

Claim 18 recites a connector for attaching an external device to the vehicle, wherein *inputs can be mapped to outputs with the external device*. The Examiner asserts that Coleman discloses the claimed invention, referring Applicants to cols. 5-6, lines 55-3, and cols. 6-7, lines 47-10. However, Coleman refers to a joystick and computer means, which adapted to be connected to an alarm system, not to *an external device with which inputs can be mapped to outputs*, as set forth in claim 18. In the absence of such teaching, claim 18 should be allowable in its own right.

Claims 19 and 20 depend from 18 and should be allowable for at least the same reason(s) as claim 18.

Claims 26, 28 and 30 recite steps of providing a field, and entering one of either an input, an operation or control function, or an output into the field, as steps for *mapping an input to an output*. The Examiner asserts that Coleman discloses the claimed invention, referring Applicants to col. 4, lines 17-36. However, Coleman is totally void any teaching of steps of providing a field, and entering one of either an input, an operation or control function, or an output into the field, *as steps for mapping an input to an output*, as set forth in claims 26, 28 and 30. In the absence of such teaching, these claims should be allowable in their own right.

Claims 32, 33 and 34 recite software application that is stored in an external device that is adapted to be removably connected to the personal mobility vehicle, wherein the external device is in the form of a handheld pendant or a personal computer. These claims depend from claim 24, which recites a program editor for carrying out the steps for mapping an input to an output, as set forth in claim 21.

Coleman fails to teach the invention set forth in claims 32, 33 and 34. In the absence of such teaching, these claims should be allowable in their own right.

Claim 35 recites software that is a user-friendly windows application software. Coleman is totally void any teaching of the invention set forth in claim 35. In the absence of such teaching, claim 35 should be allowable in its own right.

New Claims

Claim 38 is directed toward an electronic control system for a wheelchair. The system comprises a plurality of input devices, a plurality of output devices, and a control system for controlling the output devices in response to signals from the input devices. The control system is programmable to map the input devices to desired output devices according to a user's preferences. None of the cited references disclose or teach the invention recited in claim 38. In the absence of such disclosure or teaching, claim 38 should be allowable as presented.

Request for Telephone Interview

As a final matter, if the Examiner has any suggestions concerning different claim phraseology that, in the opinion of the Examiner, more accurately defines the present invention, prior to issuance of another Office Action, Applicant's undersigned attorney requests the courtesy of a telephone interview at the Examiner's earliest convenience to discuss the application. Applicant's undersigned attorney may be contacted at (419) 255-5900.

In view of the amendments and above remarks, it is believed that the application is in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested.